# ABSTRACT

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Administration of antiviral drugs may be in some case associated with severe nephrotoxicity. This adverse effect can be based on active renal transport and accumulation of the drugs in the renal cells. Several experimental *in vitro* methods are available to study the mechanisms responsible for drug uptake in the kidney including standard renal cell lines or renal slices. The aim of this study was to evaluate usefulness of isolated rat renal cells to determine which renal transporters may be involved in transport of selected antivirals into the renal cells. The freshly isolated rat renal cells were prepared by two-phase collagenase perfusion method. To evaluate contribution of active and passive transport mechanisms to the renal uptake, accumulation at normal and low incubation temperature was evaluated. To confirm previous information on mechanisms of the renal transport, we also determined which groups of transporters contributed to the renal accumulation of the studied antivirals. For this purpose, we use specific inhibitors of the appropriate transporters. The results demonstrated that adefovir and tenofovir were transported into the renal rat cells mostly by active transport mechanisms. The most potent inhibitor of the renal uptake was OATs inhibitor probenecid. Inhibitors of OCTs and CNTs had a significantly lower effect on the renal accumulation of these compounds. Both antivirals had similar transport characteristics. In conclusion, the found results are in accordance with the previously published data on transmembrane transport mechanisms of adefovir and tenofovir. This fact documents validity of the used method for accumulation study of the drugs in the kidney. In addition, the results confirm the suggested significance of OATs for renal accumulation of the studied antivirals.